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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,702

03/26/2004

Georg Erhard Eggers

0928.0042C

8146

27896 7590 08/17/2007  
EDELL, SHAPIRO & FINNAN, LLC  
1901 RESEARCH BOULEVARD  
SUITE 400  
ROCKVILLE, MD 20850

EXAMINER

TRAN, ANTHAN

ART UNIT

PAPER NUMBER

2827

MAIL DATE

DELIVERY MODE

08/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/809,702

Applicant(s)

EGGERS ET AL.

Examiner

Anthan T. Tran

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/26/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims (claims 2 and 14). Therefore, the "wired OR circuit" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-9, 12-13, 15-21, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Woo et al. (US Pat. 6,373,768).

Regarding claims 1 and 13, Fig. 10 of Woo discloses a device for controlling one or more memory modules comprising: a first memory module [610] with a temperature sensor for detecting the temperature of the first memory module [col. 13, lines 1-2], the temperature sensor being arranged in the first memory module [col. 13, lines 1-2]; a second memory module [620] with a second temperature sensor col. 13, lines 1-2 for detecting the temperature of the second memory module, the second temperature sensor being arranged in the second memory module col. 13, lines 1-2 ; a measurer [built-in 640, col. 13, lines 2-4] for determining a highest temperature [col. 13, lines 17-19]; and a memory control module [also 640], the memory control module [640] being connected to the first and second memory modules [610, 620] via the measurer [the measurer (built-in 640) measures the actual temperature of the memory module [col. 13, lines 2-4], and base on the measured temperature, the controller performs an operation to lower down the temperature. Therefore, it is inherent that the controller communicate with the memory modules through the temperature measurer] the memory control module [640] being designed such that an adaptation operation is initiated

[cooling down operation], if the highest temperature exceeds a predetermined value [threshold temperature] [col. 13, lines 7-14].

Regarding claims 3 and 15, Fig. 10 of Woo discloses a method for controlling one or more memory modules comprising: transmitting temperature signals from a first and second memory module to the means for determining a highest temperature [col. 13, lines 4-7]; determining the highest temperature [since the measurer 640 determines if the measured temperature exceeds a threshold temperature, it is inherently that the measurer compares the highest temperature that it detects with the threshold]; communicating the temperature signal corresponding to the highest temperature to a memory control module [col. 13, lines 7-8]; evaluating the temperature signal corresponding to the highest temperature; and initiating an adaptation operation, if the temperature of the highest memory module exceeds a predetermined value [threshold, col. 13, lines 7-14].

Regarding claims 4 and 16, col. 9 lines 20-24 and lines 33-39 of Woo discloses wherein the number of commands per unit time transmitted to the first and second memory modules is reduced by the adaptation operation [as disclosed by Woo, the waiting period for the next command increases during the adaptation period. More waiting time means less command will be processed per a given time period. Woo also discloses the performances is reduced or prevent memory access during adaptation period].

Regarding claims 5 and 17, col. 7 lines 14-19 of Woo disclose wherein the temperature in the first [610] and second [620] memory modules is lowered by the adaptation operation activating a cooling unit is activated.

Regarding claims 6 and 18, col. 9 lines 58-65 of Woo disclose wherein a number of memory refreshes per unit time is increased by the adaptation operation.

Regarding claims 7 and 19, col. 9 lines 33-42 of Woo disclose wherein one of the memory modules is deactivated in a predetermined manner by the adaptation operation [preventing memory access, and turn off no-essential circuitry].

Regarding claims 8 and 20, col. 9 lines 33-35 of Woo disclose wherein a system is ramped down [reducing performance] in a predetermined manner by the adaptation operation.

Regarding claims 9 and 21, col. 10 lines 14-16 and col. 13 lines 7-8 of Woo disclose wherein the temperature is binary-coded [0,1].

Regarding claims 12 and 24, col. 10 lines 37-38 of Woo disclose wherein the temperature is converted into an analog temperature signal.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 10-11 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al. (US Pat. 6,373,768) in view of Nam et al (US Pat. 6,597,614).

Regarding claims 10-11 and 22-23, Woo discloses all claimed invention but does not specifically disclose wherein the temperature is converted into a frequency-coded temperature signal and also converted into a pulse-width-coded temperature signal. Woo discloses the temperature can be converted into analog and digital signal [col. 10, lines 37-38 and col. 13 lines 7-]. Even though Woo does not specifically disclose the temperature is converted into frequency-code signal and pulse-width-coded signal, it's well known in the art that analog signal is inherently a frequency-coded signal, and a digital signal is a pulse-width-coded signal. In addition, Fig. 5 of Nam discloses a self refresh circuit for semiconductor memory device having temperature sensor, wherein plurality of frequency-coded and pulse-width-coded signals represents different temperature [different frequencies for temperature from -10°C to 90°C.

Since Woo and Nam are both from the same field of memory device having temperature sensor, the purpose discloses by Nam would have been recognized in the pertinent art of Woo.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to convert a temperature signal into frequency-coded and pulse-width-coded signals for the purpose of effectively detecting each different temperature.

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4. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al. (US Pat. 6,373,768) in view of Barrow et al. (US Pub. 2002/0131225).

Regarding claims 2 and 14, Fig. 10 of Woo discloses the first and second memory modules [610, 620], each having temperature sensor [col. 13, lines 1-2] to detect temperature of the memory modules and transfer the temperature in form of digital signals to controller 640, where whether the maximum detected temperature is exceeded the threshold temperature is determined. Woo doesn't specifically disclose the temperature signal is in pulse-width-coded form, and a wired OR circuit to combine the pulse-width-coded temperatures signals to determine the highest temperature. However, Fig. 1 of Barrow discloses a semiconductor memory device having temperature sensor [12-14, paragraph 0012] wherein temperatures are represented by pulse-width-coded [ $V_{\text{CONTROL}}$  is high or low, paragraph 0012 (last sentence), a pulse-width signal is inherently created when  $V_{\text{CONTROL}}$  signal is high for a period (when local temperature is higher than predetermined level) and then low for a different period (when local temperature is lower than predetermined level)], and a wired OR circuit [28] combining pulse-width coded temperature signals [ $V_{\text{CONTROL}1} - V_{\text{CONTROL}3}$ ] to generate a signal corresponding to whether or not the highest local temperature exceeds a predetermined level. According to Fig. 3 of applicants, temperature signals TS1 and TS2 are represented by a high-low signal. Applicant disclosed that TS1 and TS2 are combined by an OR circuit. Inherently, an OR circuit outputs a high logic when either or both TS1 or TS2 is/are high. OR circuit [28] of Barrow performs equivalent function of outputting a high logic one or all signals [ $V_{\text{CONTROL}1} - V_{\text{CONTROL}3}$ ] is/are high. When a



signal  $V_{\text{CONTROL}}$  is high, a local temperature is exceeded a predetermined level. It's inherent that the maximum temperature that temperature sensors [12-14] detected is compared with a predetermined level. Therefore, the highest temperature is inherently detected whenever the OR circuit output a high logic.

Since Woo and Barrow are both from the same field of memory device having temperature sensor, the purpose discloses by Barrow would have been recognized in the pertinent art of Woo.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine temperature signals by an OR circuit for the purpose of outputting a high logic when one or both temperature signal/s is/are high.

### ***Conclusion***

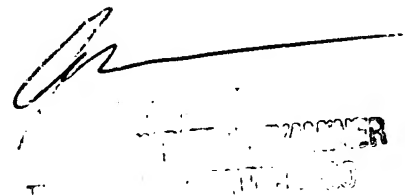
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthan T. Tran whose telephone number is 571-272-8709. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMIR ZARABIAN can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthan Tran  
AT

A handwritten signature in black ink is written over a circular official stamp. The stamp contains the text "UNITED STATES PATENT AND TRADEMARK OFFICE" around the perimeter and "RECEIVED" in the center.